



# National Transportation Safety Board

Washington, DC 20594

## Safety Recommendation

---

**Date:** May 15, 2013

**In reply refer to:** A-13-18 and -19

Mr. Rob Gramlich  
Interim Chief Executive Officer  
American Wind Energy Association  
1501 M Street, NW  
Suite 1000  
Washington, DC 20005

---

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant accidents in other modes of transportation—railroad, highway, marine, and pipeline. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the federal government and other organizations to provide assistance to victims and their family members affected by major transportation disasters. We are providing the following information to urge the American Wind Energy Association (AWEA) to take action on the safety recommendations issued in this letter.

This recommendation addresses hazards that meteorological evaluation towers (MET) pose to low-altitude aviation operations. It is derived from the NTSB's investigations of three accidents in which airplanes inadvertently collided with METs, fatally injuring four people. As a result of these investigations, the NTSB has issued six safety recommendations, two of which are addressed to AWEA. Information supporting these recommendations is discussed below.

### Accidents

On January 10, 2011, about 1057 Pacific standard time, the left wing of a Rockwell International S-2R, N4977X, impacted an unmarked and unlighted MET during an aerial seed application flight on Webb Tract Island, Oakley, California.<sup>1</sup> Witnesses reported that they did not see the airplane perform any evasive maneuvers before the impact, indicating that the pilot did not see the obstruction. The pilot was fatally injured, and the airplane sustained substantial damage. Visual meteorological conditions prevailed and no flight plan was filed for the 14 *Code of Federal Regulations* (CFR) Part 137 flight. The NTSB's investigation found that the county

---

<sup>1</sup> More information about this accident, NTSB case number WPR11LA094, is available at <http://www.nts.gov/aviationquery/index.aspx>.

permit<sup>2</sup> for the MET had expired more than a year before the accident, but the MET had not been removed as stipulated by the permit's conditions of approval.

On May 19, 2005, about 0944 central daylight time, a turbine-powered Air Tractor AT-602 agricultural airplane, N9017Z, registered to and operated by McAdoo Flying Service, Inc., of Crosbyton, Texas, impacted terrain following an in-flight collision with an unmarked and unlighted MET<sup>3</sup> while maneuvering near Ralls, Texas.<sup>4</sup> The commercial pilot, the sole occupant of the airplane, was fatally injured, and the airplane was destroyed. Visual meteorological conditions prevailed throughout the area and a flight plan was not filed for the 14 CFR Part 137 aerial application flight. The local flight originated from Crosbyton Airport, near Crosbyton, Texas.

On December 15, 2003, about 1416 Pacific standard time, an Erickson SHA Glasair TD homebuilt aircraft, N434SW, collided with an unmarked and unlighted MET and its wires during an unknown phase of operation about 1 nautical mile north of Vansycle, Oregon.<sup>5</sup> The pilot and passenger sustained fatal injuries, and the airplane was destroyed. Visual meteorological conditions prevailed and a flight plan was not filed. The personal flight originated from Yakima, Washington, about 1345, and its destination was reported to be Walla Walla, Washington.

## Discussion

METs can be erected quickly and, depending on their location, without notice to the local aviation community. In March 2011, the NTSB issued a safety alert<sup>6</sup> about METs, noting that the speed with which they can be erected is an important aspect of this safety issue—in just a matter of hours, the navigable airspace for low-flying operations can change without notice. Because their height is typically just under the 200-feet-above-ground-level (AGL) threshold that requires Federal Aviation Administration (FAA) notification,<sup>7</sup> including a marking and lighting plan, METs are often erected without markings or lighting. Because of these factors, pilots have reported difficulty seeing METs from the air (the following figure shows an example MET), which has led to accidents.

---

<sup>2</sup> The permit for the MET was issued by Contra Costa County, which specified that the paint colors for the MET blend in with the surroundings and “have a reflectivity less than 55%.”

<sup>3</sup> The original accident report referred to the MET as an antenna tower.

<sup>4</sup> More information about this accident, NTSB case number DFW05LA126, is available at <http://www.nts.gov/aviationquery/index.aspx>.

<sup>5</sup> More information about this accident, NTSB case number SEA04LA027, is available at <http://www.nts.gov/aviationquery/index.aspx>.

<sup>6</sup> NTSB Safety Alert SA-016 highlights the dangers of METs and provides links to resources where pilots can find additional information; it is available at [http://www.nts.gov/doclib/safetyalerts/SA\\_016.pdf](http://www.nts.gov/doclib/safetyalerts/SA_016.pdf).

<sup>7</sup> Title 14 CFR 77.9, “Construction or alteration requiring notice” states, in part, that “If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of: (a) Any construction or alteration that is more than 200 ft. AGL at its site.”



**Figure.** A photograph showing a MET (indicated by the black arrow), as seen from an accident site (NTSB case number WPR11LA094).

Currently, it is unknown how many METs are erected in the United States. Unless notice is required by other provisions in 14 CFR Part 77,<sup>8</sup> the FAA does not conduct an aeronautical study of any structure less than 200 feet AGL at its site. On January 5, 2011, acknowledging that METs often fall outside of FAA regulations governing tall structures and their impact on navigable airspace, the FAA published a notice seeking comments on a proposed revision to Advisory Circular (AC) 70/7460-1, “Obstruction Marking and Lighting,” that is intended to establish “a uniform and consistent scheme for voluntarily marking” METs less than 200 feet AGL (76 *Federal Register* 490). In June 2011, the FAA published a policy statement announcing its approval of the recommended guidance (76 *Federal Register* 36983). According to the FAA, no further action on MET requirements is presently being considered. The NTSB is recommending in a separate letter that the FAA amend Part 77 to require marking and registration of all METs and create a nationwide registry.

---

<sup>8</sup> In addition to height considerations, section 77.9 requires that notice for proposed structures be filed with the FAA based on proximity to an airport, location, and frequencies emitted from the structure.

Recognizing that revising regulations can be a protracted undertaking, the NTSB is interested in actions other stakeholders, such as AWEA, can take to address this safety issue. AWEA's *Wind Energy Siting Handbook* contains a section in chapter 4 that briefly outlines aviation considerations involved with a wind energy development project, including required FAA notifications. It also references AC 70/7460-1. However, wind turbines are the handbook's focus and METs are not discussed much beyond their role in a project. The NTSB believes that AWEA can help increase awareness among its membership about the potential aviation hazards of METs by revising the handbook to mention their lack of visibility for low-altitude operations and encourage voluntary marking using AC 70/7460-1 as guidance. The NTSB also believes that AWEA should inform all members about this safety issue.

Therefore, the National Transportation Safety Board makes the following recommendations to the American Wind Energy Association:

Revise the *Wind Energy Siting Handbook* to clearly indicate the hazards that meteorological evaluation towers (MET) pose to low-altitude aviation operations and encourage voluntarily marking them to increase their visibility by reference to Advisory Circular 70/7460-1, "Obstruction Marking and Lighting." (A-13-18)

Inform your members about the circumstances of the airplane accidents that have occurred in connection with the presence of meteorological evaluation towers (MET) and emphasize the importance of understanding the aviation safety hazards associated with METs when erecting them. (A-13-19)

The NTSB also issued two safety recommendations to the FAA; one recommendation to the Department of the Interior, the Department of Agriculture, and the Department of Defense; and one recommendation to the governors of 50 US states and territories and the District of Columbia. In response to the recommendations in this letter, please refer to Safety Recommendations A-13-18 and -19. We encourage you to submit updates electronically at the following e-mail address: [correspondence@ntsb.gov](mailto:correspondence@ntsb.gov). If your response includes attachments that exceed 10 megabytes, please e-mail us at the same address for instructions. To avoid confusion, please do not submit both an electronic copy and a hard copy of the same response.

Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, ROSEKIND, and WEENER concurred in these recommendations.

*[Original Signed]*

By: Deborah A.P. Hersman,  
Chairman